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(54) Installation for the Protection of Persons and Properties in an Urban Centre

(57) An installation for the protection in an urban centre of persons and properties against aggressions, burglaries or similar actions, comprises a central station C (e.g. a police station) which is telephonically connected to relay stations R distributed in the urban centre, which stations are responsive to alarm transmitters E_1 having a range limited in principle to the maximum distance between a transmitter and a relay station. Means are provided for preventing simultaneous transmission to the central station of alarm messages from several stations R which have received signals from the same transmitter E.

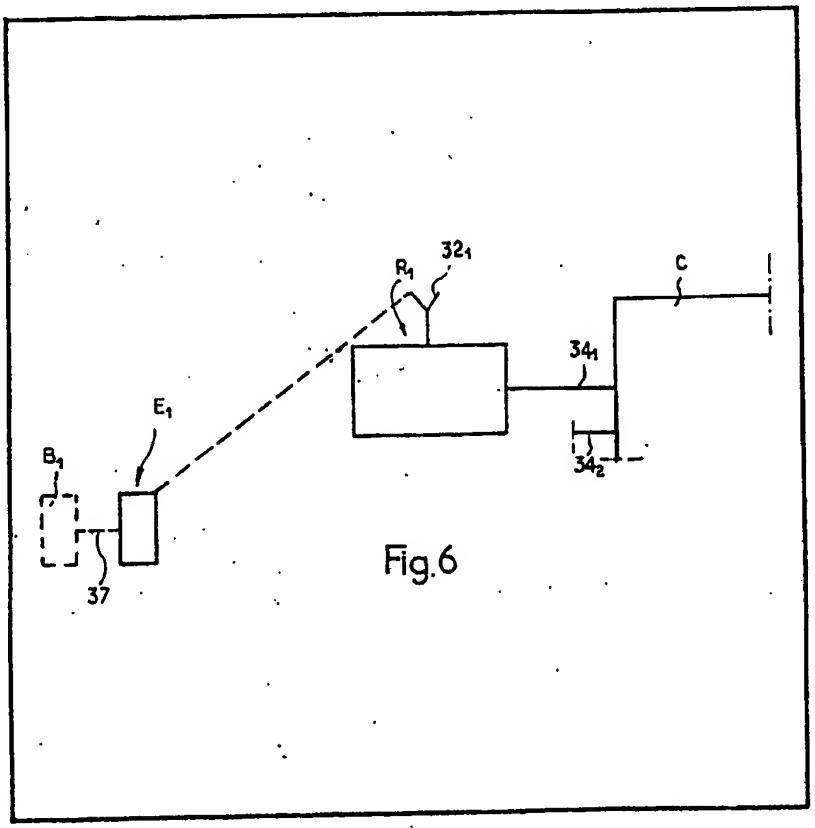

Fig.6

The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

GB 2 016 770 A

Fig.3

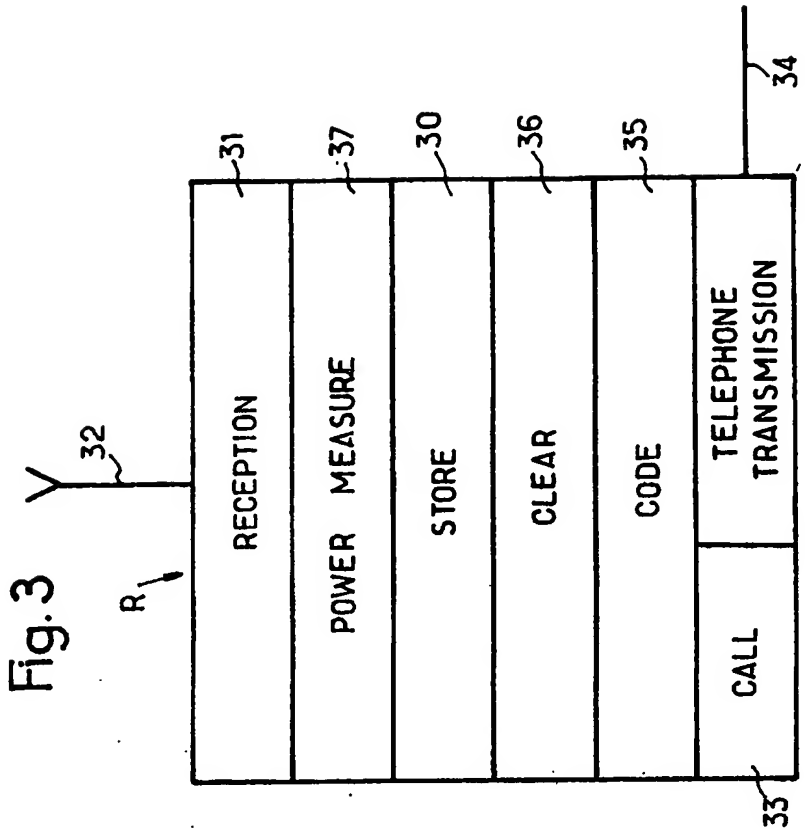
Y
32
R
RECEPTION
POWER MEASURE
STORE
CLEAR
CODE
TELEPHONE TRANSMISSION
CALL
31
37
30
36
35
34
33

Fig.1

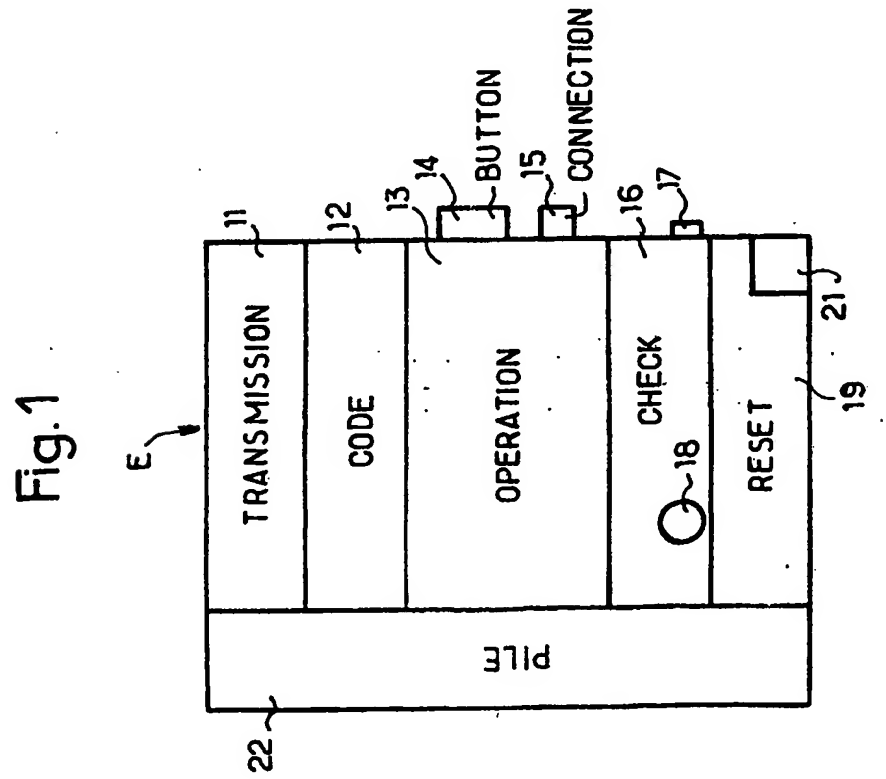
E
TRANSMISSION
CODE
OPERATION
CHECK
RESET
PILE
BUTTON
CONNECTION
11
12
13
14
15
16
17
18
19
21
22

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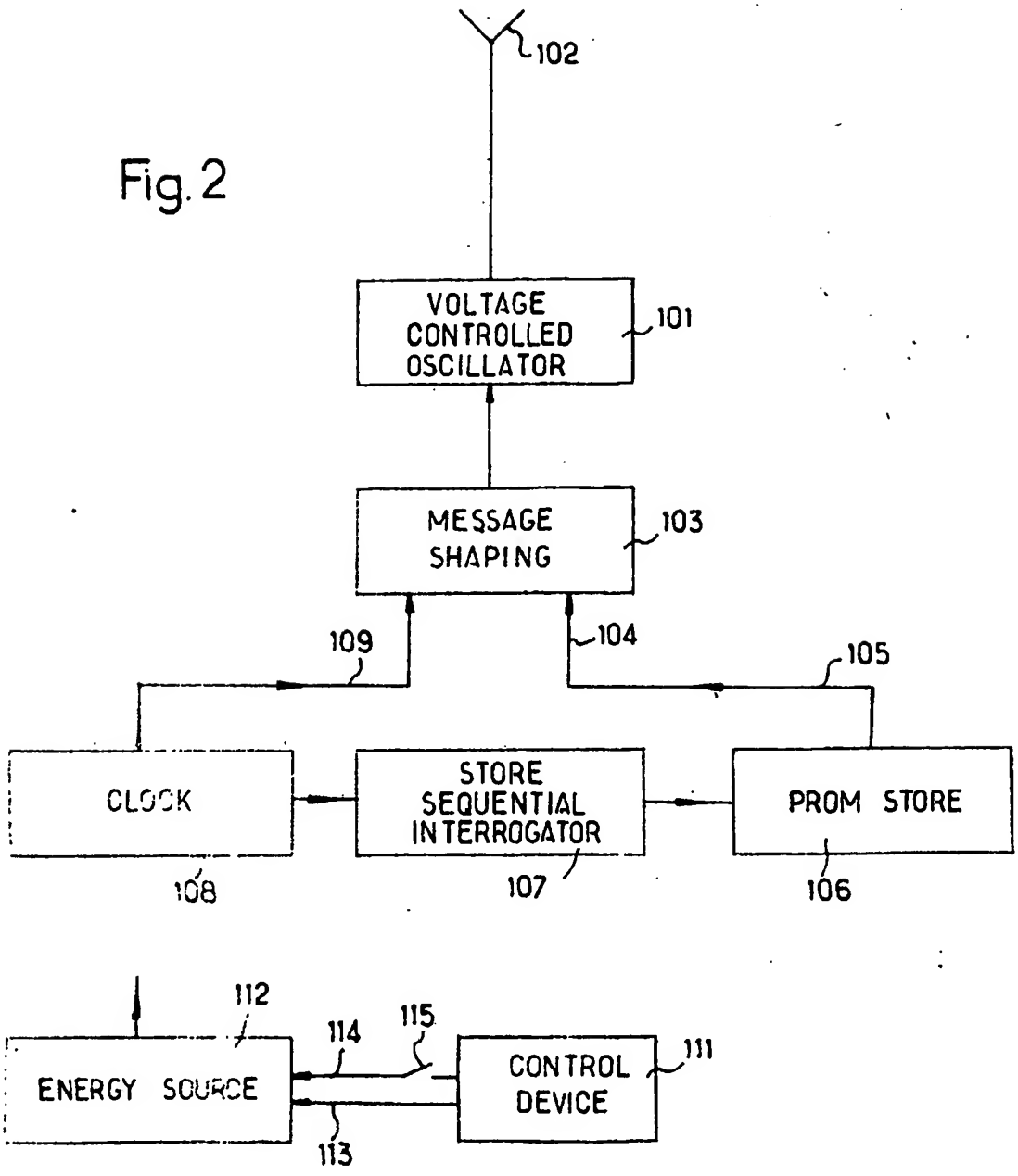
Fig. 2



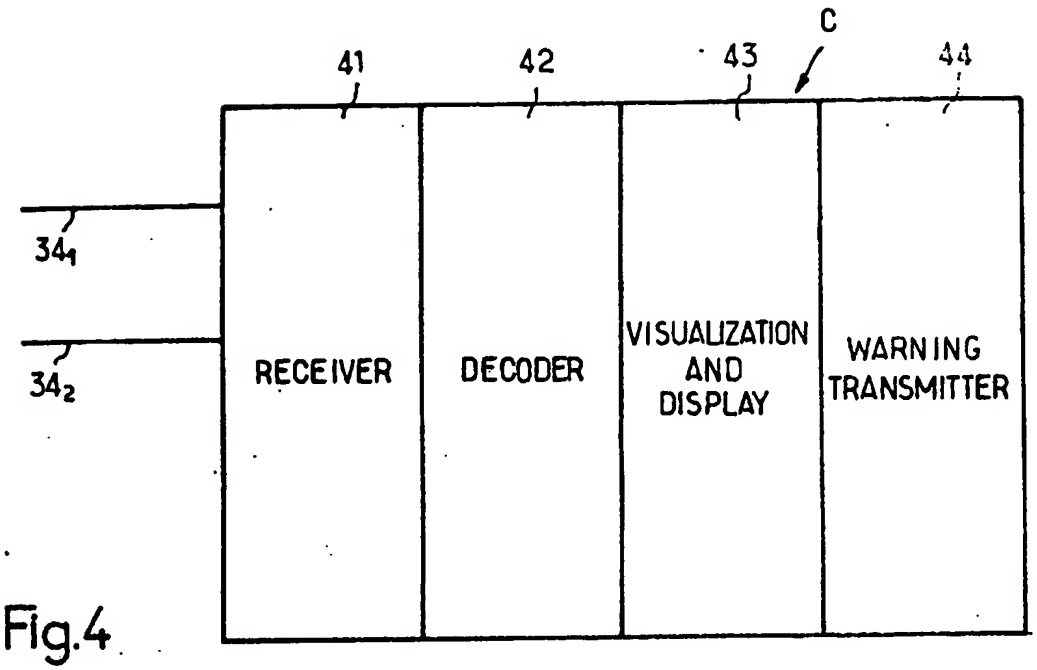

C
41
42
43
44
34_1
34_2
RECEIVER
DECODER
VISUALIZATION AND DISPLAY
WARNING TRANSMITTER

Fig.4

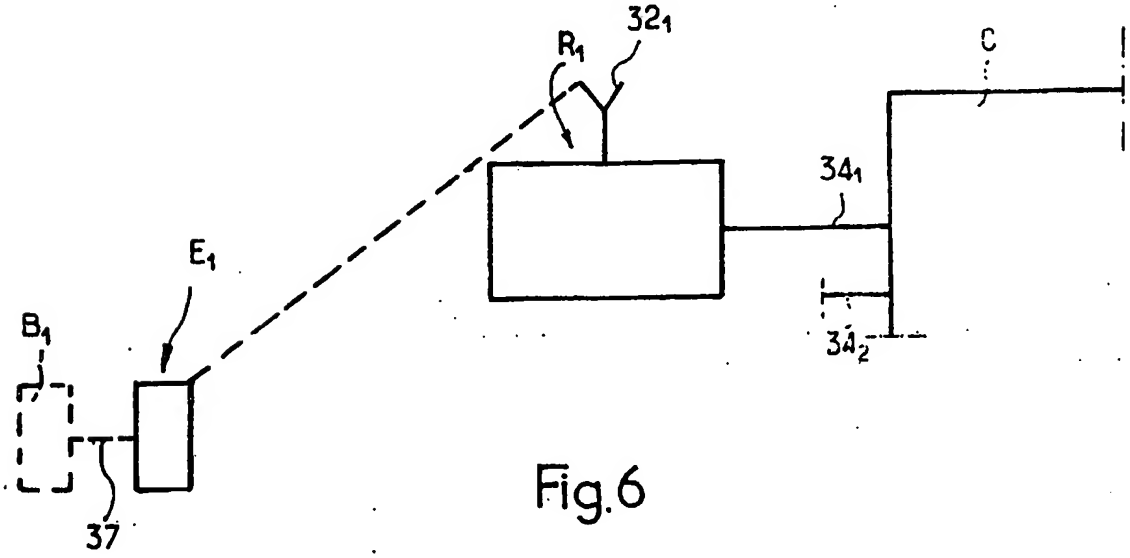
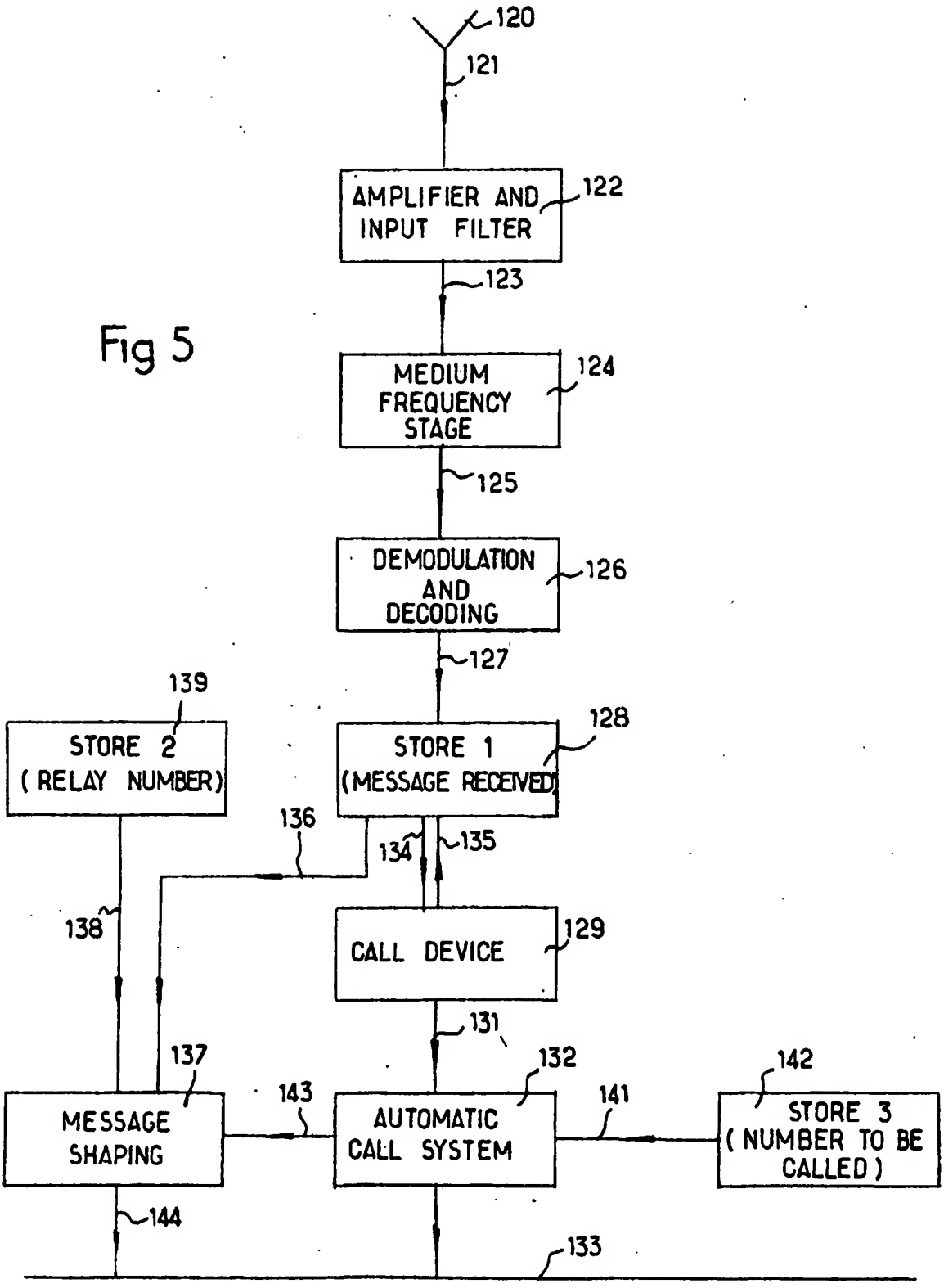

32_1
R_1
C
34_1
E_1
B_1
34_2
37

Fig.6

Fig 5


120
121
AMPLIFIER AND INPUT FILTER
122
123
MEDIUM FREQUENCY STAGE
124
125
DEMODULATION AND DECODING
126
127
139
STORE 2 (RELAY NUMBER)
STORE 1 (MESSAGE RECEIVED)
128
136
134
135
138
CALL DEVICE
129
131
137
132
142
143
141
MESSAGE SHAPING
AUTOMATIC CALL SYSTEM
STORE 3 (NUMBER TO BE CALLED)
144
133

SPECIFICATION

Installation for the Protection of Persons and Properties in an Urban Centre

The problem of the protection of people against aggressions, and of properties against burglaries, becomes more and more acute.

Attacks against people are even increasing.

The frequency of burglary attempts is growing.

The remedies proposed so far are based mainly on an increase of the police force.

Further to the budget which is necessary for the keeping of such forces, it is clear that due to the scattering of the locations where an attack may occur, it is excluded that a protection may be provided with certainty in all places.

The invention fills this gap.

It is based on the established fact that in urban centres, there exists, due to their nature as such, buildings densely distributed, said buildings being practically all connected to a telephone system.

The object of the invention is an installation for the protection of people and of properties in an urban centre, which comprises, in some of the buildings of the agglomeration, composite telephone sets which receive a radio alarm signal and transmit, in response to such a radio signal, a telephone alarm signal, the people and properties to be protected being provided with a ratio transmitter of a deliberately short range, of the order of ten metres, the distribution of the composite telephone sets in the urban centre being such that at least one set is likely to receive a radio alarm signal whatever is the location in the centre of the alarm transmitter so that at a central station connected by telephone with the various composite sets, the reception of an alarm signal provides the immediate localization of the place where the aggression or the burglary attempt is taking place.

The fact that the range of the alarm signal transmitter is limited to a few tens of metres offers the extra advantage of keeping the manufacture of the set simple and economical.

The constitution of the composite set, made of a radio receiver and a telephone transmitter, is also sufficiently simple for allowing, from a financial point of view, the equipment of an urban centre with such sets.

In the following description, which is given as an example, reference is made to the accompanying drawing wherein:

Figure 1 is a symbolic representation of a radio alarm transmitter;

Figure 2 is a block diagram of such a transmitter;

Figure 3 is a symbolic representation of a relay;

Figure 4 is a symbolic representation of a central station;

Figure 5 is a block diagram of a relay; and

Figure 6 is a symbolic representation of the whole installation.

The transmitter device E, provided for transmitting an alarm signal, comprises a transmitter as such 11 (Figure 1) adapted for transmitting an alarm signal, coded by a coding device 12 associated to it. The device E has operating means 13. In an embodiment, the operation, that is the triggering of a message, is provided by pressing on a button 14 or similar, or the handling of a lever. In an embodiment, the triggering is provided by an electric pulse supplied to an input 15. The set has also a checking device 16 for its operation: pressing on a button 17 allows, for instance through the lighting of a lamp 18, checking the good operating condition of the set. Also advantageously, the set comprises a resetting device 19; the set is adapted for being unserviceable for a new operation once it has transmitted an alarm signal: however, its resetting may be provided by operating a member 21. Its being put out of service after a transmission is provided for instance by the destruction in the device of a fuse which can be replaced only by a specialist or an entitled person. The set assembly comprises an electric energy source, viz. a battery, housed inside part 22.

The transmitting set assembly is housed in a casing which may have a length of the order of 5 to 10 cm, and if of cylindrical shape, a diameter of the order of a few centimetres.

The coding device 12 allows personalizing the set, that is allocating it to a particular physical person, and it is to this person that the set will be entrusted. When said person presses on button 14, the set transmits a message comprising a signal individualizing the bearer.

The code of the coding device 12 may be also characteristic of the place where said set is placed, for instance in a flat or a car park. In such an application, the transmission of the message in case of an alarm may be triggered by a captor connected to the set via input 15 of the latter.

In the embodiment which is the object of the diagram of Figure 2, the alarm transmitting set comprises a voltage controlled oscillator 101 for the radio transmission by an antenna 102. The frequency of the signal transmitted by this oscillator is advantageously comprised within a band close to 400 MHz or to 900 MHz. These frequency bands are favourable to the hertzian transmission in an urban centre.

The control of oscillator 101 comes from a shaping device 103 for the message, which is applied at its input 104 by a circuit 105 extending from a PROM storage 106, or a programmable read only storage, which is activated through a sequential storage interrogator 107 controlled by a clock 108 acting also via circuit 109 on the shaping device 103.

The information which is in storage 106 is the code allocated to transmitter E. The oscillator 101 generates a periodical signal, which is of determined amplitude and frequency, only when a signal representing a determined binary digit (0 or 1) is applied to its input.

The storage 106 may also be used for disabling transmitter E a second time. To this effect, a position is reserved in said storage for containing an information allowing, according to its value,

the authorization of the transmission or not. The information is erased by an over voltage after the transmission. Only an entitled person will be able later to reintroduce the authorization information in storage 106.

A control device 111, comprising a button or a captor, according to the case, acts on the electric energy source 112 supplying the alarm device via conductors 113, 114, the latter having a switch 115.

The second characteristic feature of the installation is a mixed composite set or relay R. The relay R comprises a receiver 31 (Figure 3) adapted to receive the transmission from a set E detected by an antenna 32 of the relay.

The latter comprises a storage device 30 in which is stored the received message. The reception of a message triggers the operation of a telephone call device 33 which, via a telephone line 34, connects telephonically relay R with a central station C (Figure 6).

The telephone connection having been established, the station C receives via the telephone line 34 a message comprising the code of set R having received the alarm message and which is contained in a code unit 35 of said set, and eventually the message coming from the transmitting device E which has been stored in storage 30.

The relay R comprises also a device 36 for erasing the message stored in device 30.

The central station C to which arrive the various telephone lines 34_1, 34_2, etc. (Figure 4) of a determined town district, comprises a telephone receiver device 41 followed by a detector 42, which is followed by a visualization or display device 43 for the informations relative to the transmitter and to the relay transmitting a message.

Upon reception of a message on a line 34, the central station C is informed not only of the existence of an aggression or of an incident of some sort, but also by the decoding of the code attached to relay R from which the telephone message is received, of the place, within a few tens of metres, of the incident.

The transmission of the code attached to transmitter E provides an information on the nature of the incident. Thus, a transmitter carried by a person transmits a signal providing an information on the identity of the person. A transmitter placed in a flat transmits a signal representing its location (floor, door number). A transmitter placed in a motor vehicle can supply a signal providing information on the type of vehicle and/or its plate number.

Through a transmitter 44 which is connected to the central station C, the police station which is nearest to the place of the incident is warned and can intervene immediately.

Means are provided for preventing that several sets R send simultaneously alarm messages to the central station C following the reception by them of a signal from the same transmitter E.

For instance, each relay R comprises a power measuring device 37 introducing a time delay between the message received and the message transmitted by said relay set, which is longer in proportion to the weakness of the reception.

To this effect, an analog-to-digital converter is provided for converting into a digital information the amplitude of the received signal, and shift-register means for introducing a time delay which is all the longer as the digital information corresponding to the signal is weaker.

Relays R may be placed in buildings.

The central station C is located in a police station.

The necessity of resetting an alarm transmitter E by an administrative authority allows a check which makes untimely operations scarcer.

In the embodiment of the relay station R shown in Figure 5, the message received by an antenna 120 of said relay is applied by circuit 121 to an amplifying and filtering device 122 the output 123 of which is connected to medium frequency stage 124. The output 125 of said stage is applied to a demodulation and decoding device 126 the output 127 of which is applied to a first storage device 128 in which is registered the message received by the relay.

A call device 129 is connected via a circuit 131 to an automatic call system 132 connected to the telephone line 133. A bi-directional circuit 134, 135 allows triggering a call device 129 and, in the case of the non establishment of the telephone connection, a repeat of the call.

The storage device 128 is connected by a circuit 136 to a message shaping device 137, which is also connected by a circuit 138 to a second storage device 139 in which is contained the relay number.

The automatic call system 132 is connected by a circuit 141 to a third storage device 142 containing the number to be called. A circuit 143 connects the automatic call system to the shaping device 137. The message is applied to the telephone line 133 by a circuit 144 coming from the shaping device.

In Figure 6 is shown symbolically a whole installation. It comprises a plurality of relay sets or composite sets R_1, etc. connected to a central station C by telephone lines 34_1, 34_2, etc.

A relay set as R_1 is adapted for detecting by its antenna 32_1 a coded message coming from an alarm transmitter or warner E_1 which is at a distance of the order of a few tens of metres. Captor B_1 is shown in a flat, connected by a circuit 37 to a transmitter E_1 for controlling the alarm transmission when a phenomenon appears to which captor 31 is responsive.

The captor controlling the operation of the transmitter may also be placed in a motor vehicle.

Claims

1. An installation for the protection in urban centres of persons and properties against aggressions, burglaries or similar actions, comprising a central station established in a police station or similar, wherein the central

station is telephonically connected to relays distributed in the agglomeration and is responsive to the radio transmission of transmitting sets or warners of a range limited in principle to the maximum distance between a warning set and a relay.

2. The installation according to claim 1, wherein the warning set is portable.

3. The installation according to claim 1 or claim 2, wherein the warning transmitter is hand-controlled.

4. The installation according to claim 1, wherein the warning transmitter is controlled by a captor.

5. The installation according to claim 1, wherein a characteristic code is attached to.

6. The installation according to any one of claims 1 to 5, wherein a transmitting set comprises means which disable it after an operation, and means for resetting it under control.

7. The installation according to any one of the preceding claims, wherein a relay set comprises means for storing a received message.

8. The installation according to any one of claims 1 to 7, wherein to a relay set is attached a code which is proper to it.

9. The installation according to any one of the preceding claims, wherein a relay set comprises automatic telephone call means operating repeatedly until the telephone connection is established with a central station.

10. The installation according to claim 1, wherein a relay set comprises a radio receiver and a telephone transmitter.

11. The installation according to any one of claims 1 to 6, wherein a relay set comprises a power measuring device for the radio message received.

12. The installation according to any one of the preceding claims, wherein the central station comprises a decoder for the received messages as well as a visualization or display device providing information on the identity of the telephone transmitting relay set and/or on the radio transmitting set of a warning message.

13. A warning transmitting set which is part of an installation according to any one of claims 1 to 6.

14. A relay set which is part of an installation according to any one of claims 1 and 8 to 11.

New claim filed 16.5.79

New Claim:—

15. An installation for the protection in urban centres of persons and properties against aggressions, burglaries or similar actions, such apparatus being substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.

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